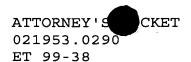
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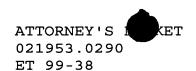
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WHAT IS CLAIMED IS:

- A system for combining multi-spectral images of a scene, the system comprising:
- a channel for transmitting a scene image in a first spectral band;
 - a detector for sensing the scene in a second spectral band, the detector having an image output representative of the scene;
- a display for receiving the image output and displaying a displayed image in the first spectral band;
- a collimator for receiving and projecting the displayed image; and
- a beam mixer for combining the transmitted scene in the first spectral band with the displayed image, and conveying the combined multi-spectral images to an output.
- 2. The system of Claim 1 wherein the first spectral band is visible light.
- 3. The system of Claim 1 wherein the second spectral band is in the infrared region.
- 4. The system of Claim 1 wherein the display is an active matrix display.
 - 5. The system of Claim 1 further comprising a viewing system coupled to the output.
- 30 6. The system of Claim 1 wherein the representative output of the detector is an analog video signal.



- 7. The system of Claim 1 wherein the representative output of the detector is a digital video signal.
- 8. The system of Claim 5 wherein the viewing system is a night vision device.
- 9. The system of Claim 5 wherein the viewing system is a camera.
 - 10. The system of Claim 1 further comprising a data port for transmitting the scene image to a remote source.
- 11. The system of Claim 1 further comprising a data port for receiving information from a remote source or other modular instrument.
- 12. The system of Claim 1 further comprising a data 20 port for receiving information from a remote source and wherein the display is adapted to receive and display data from the remote source.
- 13. The system of Claim 1 wherein the first and second spectral bands share a common aperture.
 - 14. The system of Claim 1 wherein the first and second spectral bands have separate apertures.
- 30 15. The system of Claim 5 wherein the viewing system has an objective lens assembly and an image intensifier.

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16. The system of Claim 5 wherein the viewing system has an objective lens assembly, an image intensifier and a viewing optics assembly.

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17. A method for combining multi-spectral images of a scene, the method comprising:

receiving an image of the scene in a first spectral range at a detector;

generating a video representation of the image;
transmitting the video representation to a display;
generating a visual representation of the image at
the display;

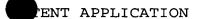
relaying the visual representation of the image;

receiving the image of the scene in a second spectral range;

combining the relayed image with the image in the second spectral range;

transmitting the combined images to an output; and displaying the combined multi-spectral images of the scene.

- 18. The method of Claim 17 wherein the first spectral range is infrared.
- 19. The method of Claim 17 wherein the second spectral range is in the visible region.
- 20. The method of Claim 17 further comprising amplifying the combined images with an image intensifier system.
- 21. The method of Claim 17 further comprising transmitting the visual representation of the image to a data port.

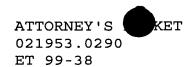


- 22. The method of Claim 17 further comprising superimposing data on the combined multi-spectral images of the scene.
- 5 23. The method of Claim 17 wherein the relaying step comprises collimating the visual representation of the image.
- 24. The method of Claim 17 further comprising the step of processing the video representation of the image.

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25. A method for combining multi-spectral images of a scene, the method comprising:

receiving an infrared (IR) image of a scene at an infrared detector;

generating a representation of the IR image;

transmitting the IR image representation to a display;

generating a visual representation of the IR image at the display;

collimating the displayed IR image;

combining the collimated IR image with an image of the scene in a second spectral region;

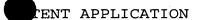
transmitting the combined images to an intensifier system operable to intensify images in the second spectral region; and

displaying the combined images of the scene.

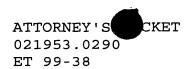
- 26. The method of Claim 25 wherein the second spectral region is visible light.
- 27. The method of Claim 25 wherein intensifier system is a night vision goggle.
- 28. The method of Claim 25 wherein the IR image is received at a first aperture and the image of the scene in the second spectral region is received at a second aperture.
- 29. The method of Claim 25 wherein the visual representation of the IR image is displayed at an external viewer.



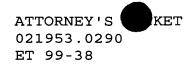
- 30. The method of Claim 25 further comprising transmitting the visual representation of the image to a data port.
- 5 31. The method of Claim 25 further comprising superimposing data on the combined multispectral images of the scene.
- 32. The method of Claim 25 further comprising processing the IR image representation.



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- 33. A system for combining multi-spectral images of a scene, the system comprising:
- a viewing system for viewing the scene in a first spectral range, the viewing system having an objective lens and viewing optics;
- a detector for viewing the scene in a second spectral range, the detector having an image output representative of the viewed scene;
- a display for receiving and displaying the image output;
 - a collimator for receiving and projecting the displayed image; and
 - a beam mixer for receiving the viewed scene in the first spectral range and the displayed image and conveying both images to the viewing system to construct the combined multi-spectral images of the scene.
 - 34. The system of Claim 33 wherein the viewing system further comprises an image intensifier.
 - 35. The system of Claim 33 wherein the first spectral range is visible light.
- 36. The system of Claim 33 wherein the second spectral range is in the infrared band.
 - 37. The system of Claim 33 wherein the display is an active matrix.
- 30 38. The system of Claim 33 wherein the viewing system is a night vision device.



- 39. The system of Claim 33 wherein the representative output of the detector is an analog video signal.
- 5 40. The system of Claim 33 wherein the representative output of the detector is a digital video signal.

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